DOE Technical Assistance Program

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

The Parker Ranch installation in Hawaii

Building Actionable Climate Action Plans

Jennifer Clymer

ICF International

December 6, 2010

What is TAP?

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DOE's Technical Assistance Program (TAP) supports the Energy Efficiency and Conservation Block Grant Program (EECBG) and the State Energy Program (SEP) by providing state, local, and tribal officials the tools and resources needed to implement successful and sustainable clean energy programs.

How Can TAP Help You?

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TAP offers:

- One-on-one assistance
- Extensive online resource library, including:
  - Webinars
  - Events calendar
  - TAP Blog
  - Best practices and project resources
- Facilitation of peer exchange

On topics including:

- Energy efficiency and renewable energy technologies
- Program design and implementation
- Financing
- Performance contracting
- State and local capacity building

The TAP Blog

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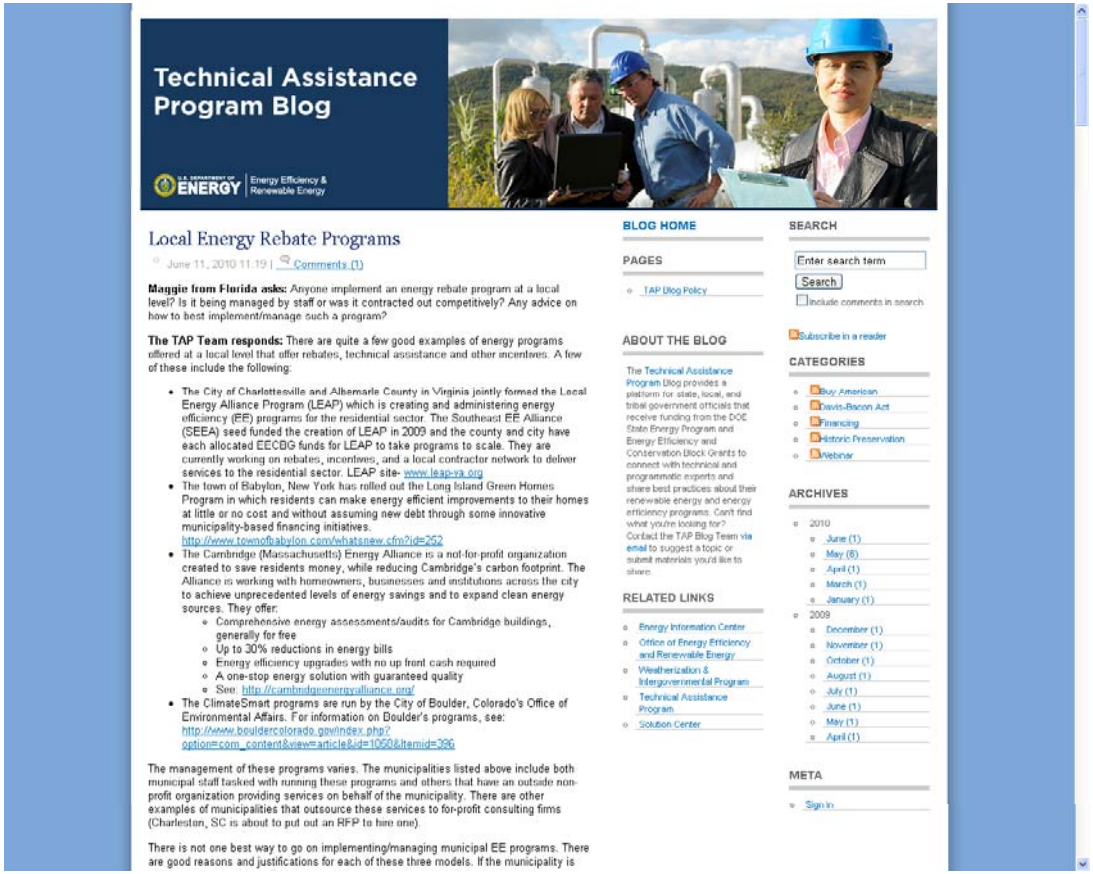
Access the TAP Blog!
http://www.eereblogs.energy.gov/tap/

Provides a platform for state, local, and tribal government officials and DOE's network of technical and programmatic experts to connect and share best practices on a variety of topics.



Accessing TAP Resources

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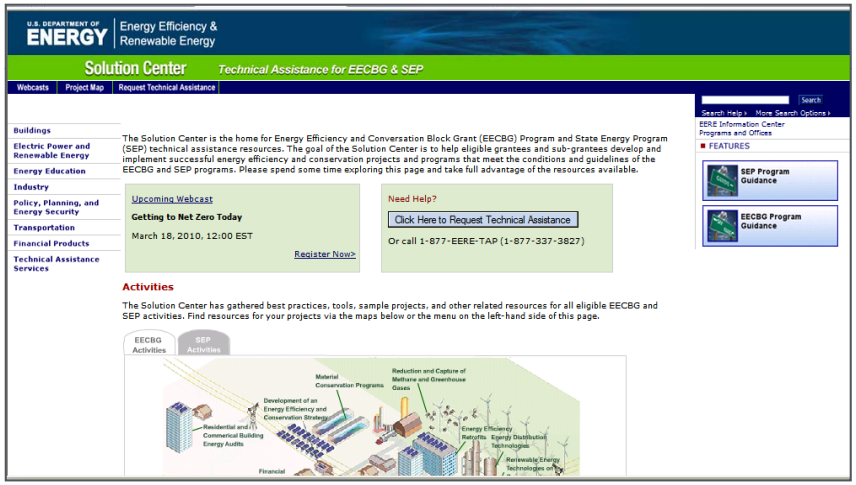
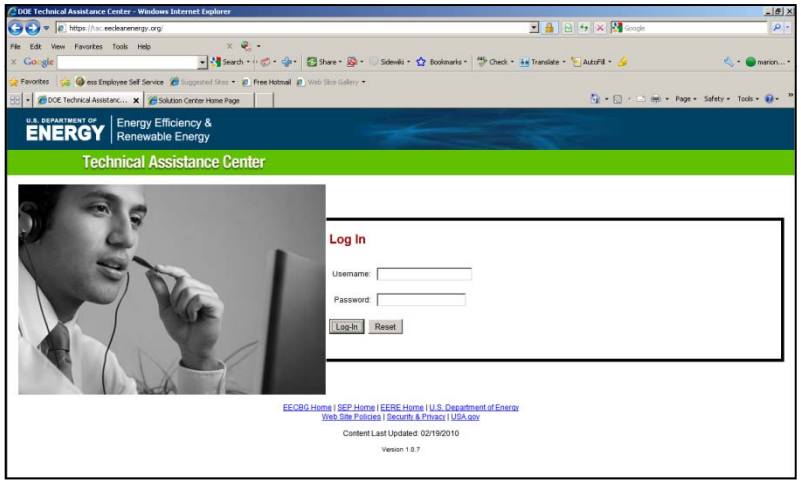
We encourage you to:

1) Explore our online resources via the Solution Center



2) Submit a request via the Technical Assistance Center



3) Ask questions via our call center at 1-877-337-3827 or email us at solutioncenter@ee.doe.gov

Agenda

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- Acronym Review
- Why Local Climate Action?
- What Is A Climate Action Plan?
- How Do I Get Started With A Climate Action Plan?
- Upcoming Webinar Preview
- Q&A

Acronym Review

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- GHG – Greenhouse Gas
- CO_2 – Carbon Dioxide
- CO_2-eq. – Carbon Dioxide-Equivalent
- MT – Metric Ton(s) = 2,200 pounds or 1.1 short (US) ton
- CAP – Climate Action Plan
- IPCC – Intergovernmental Panel on Climate Change

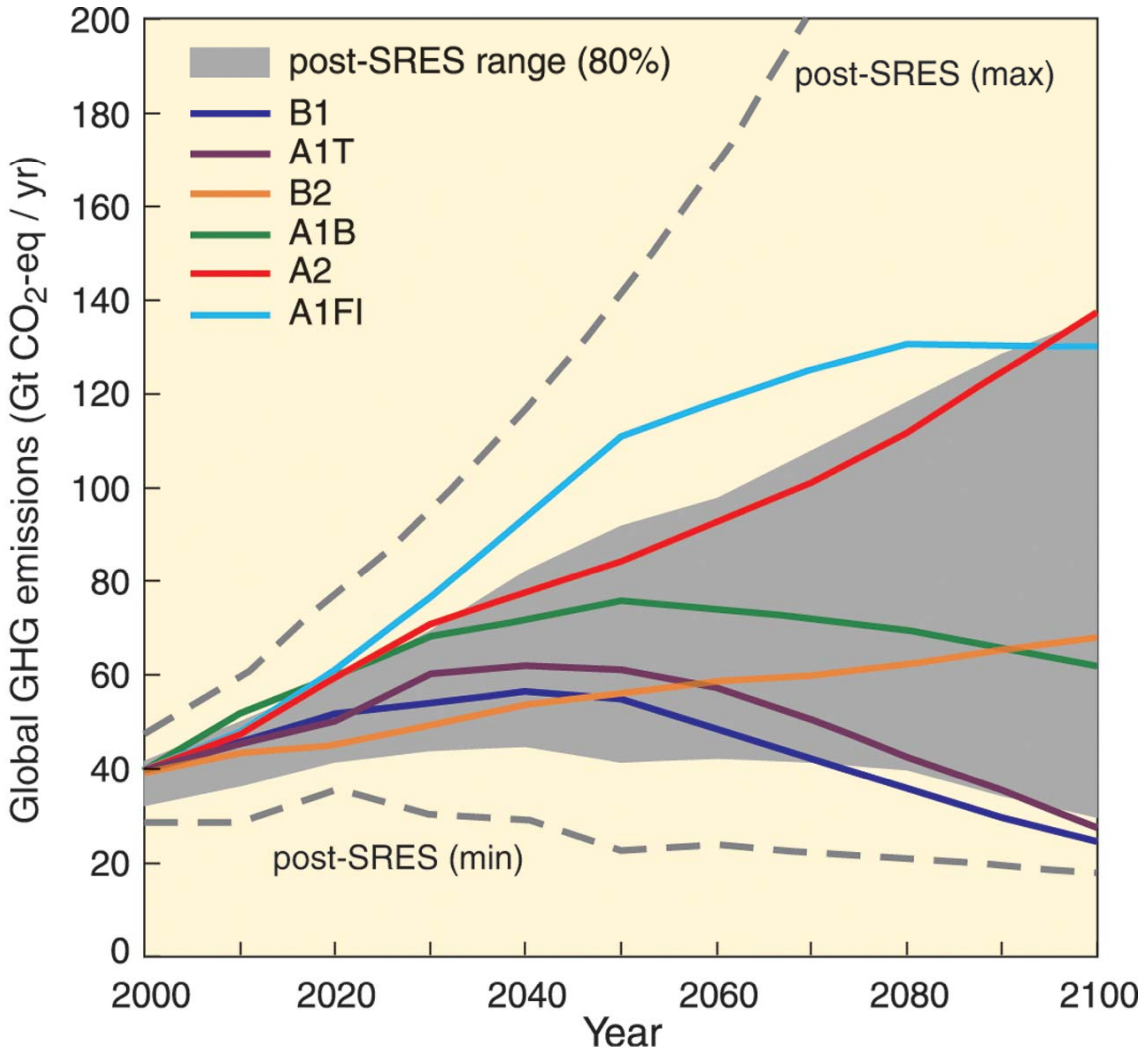
Why Local Climate Action?

Urban Areas Disproportionately Contribute to Climate Change

- Urban areas represent < 1% of global land area but house 50% of global population.
- Urban population consumes 75% of global energy and emit 75% of global GHG emissions.
- Urban population projected to increase to 60% of global population by 2030.

What does this mean for future GHG output?

IPCC GHG Projections from 2000 to 2100 (No Climate Action)



Source: IPCC, *Climate Change 2007 Synthesis Report*

With no climate action, global GHG emissions could reach 25 to 90 billion $MTCO_2$-eq. —equivalent to CO_2 output of 6,500 to 23,000 coal plants—per year by 2030.

Urban Areas May Be Disproportionately Impacted by Climate Change

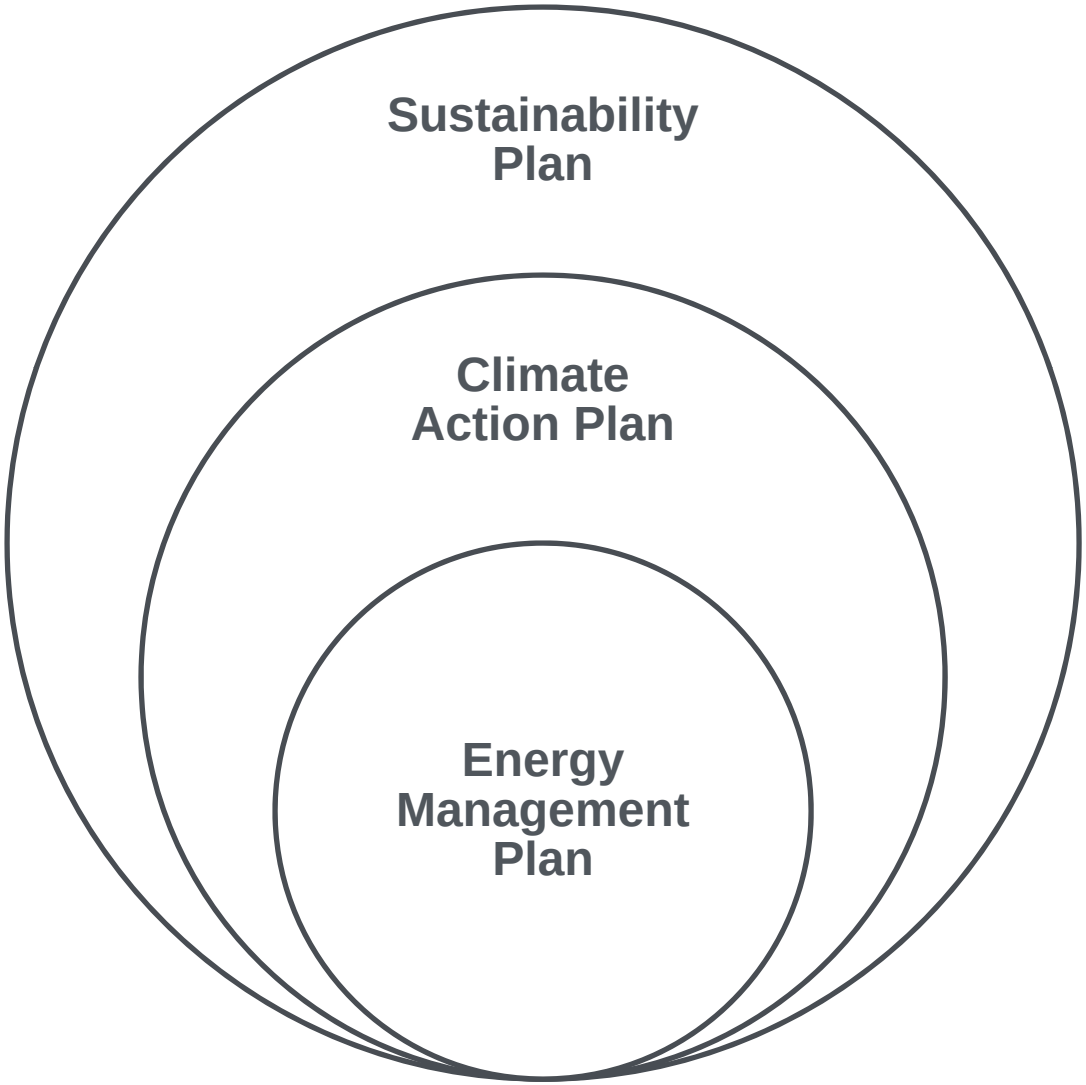
- Urban heat island effect heightens the impact of elevated temperatures.
  - More extreme heat days = higher risk of heat- and air pollution-related illnesses and deaths.
- Coastal location of many urban areas increases risk of damage from increased sea level rise, flooding, hurricanes, etc.
- Inland urban areas also at risk of increased drought, flooding, tornadoes, etc.
- Inland urban areas' social service infrastructure can be strained by displacement of coastal evacuees.

What is a Climate Action Plan?

Climate Action Plan

A plan that outlines an entity's strategies for reducing GHG emissions (mitigation) and preparing for the effects of climate change (adaptation). It describes the **actions to be taken** and **by whom**.

Related Types of Plans



Climate Action Plans and ARRA

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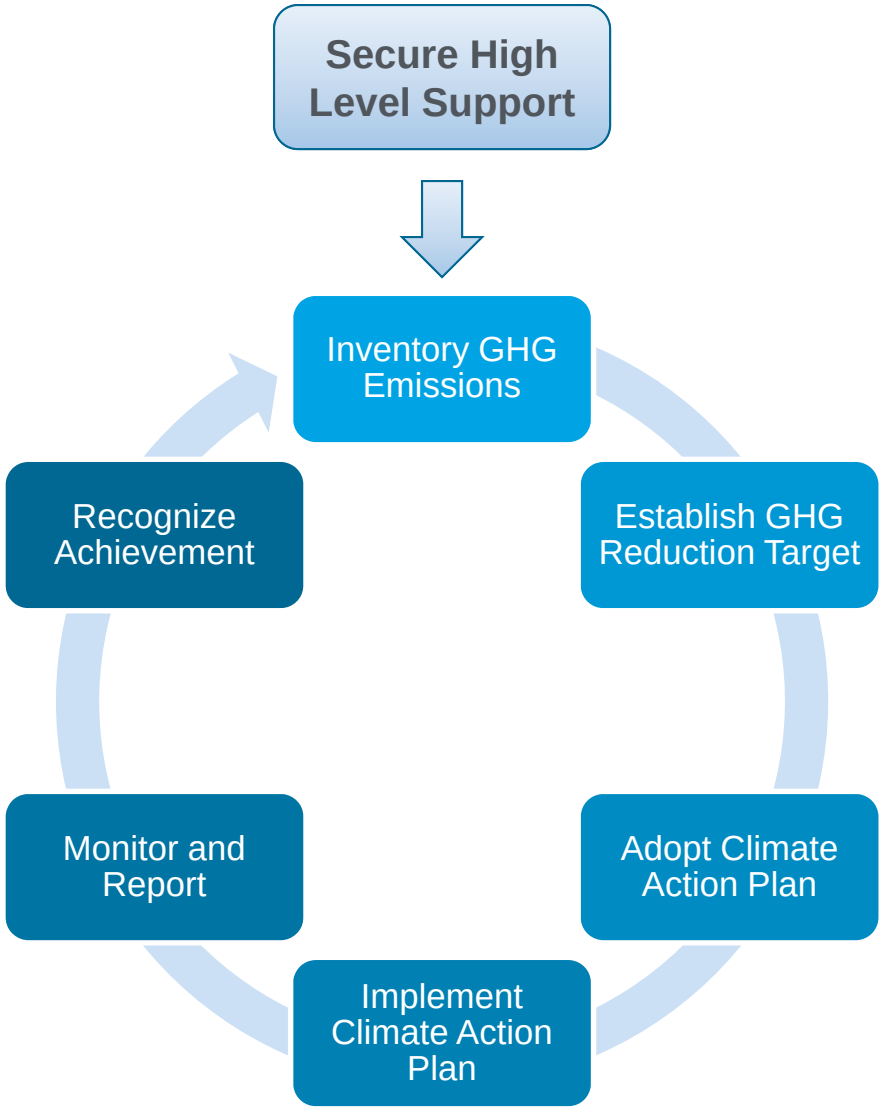
- Developing a GHG emissions inventory (and emissions tracking mechanism)
- Creating a climate action plan
- Evaluating GHG reduction and adaptation activities
- Implementing GHG reduction and adaptation activities
- Establishing financing programs to fund long-term GHG reduction/adaptation activities

How Do I Get Started with a Climate Action Plan?

The ICLEI+ Model



Step 1 – Develop GHG Emissions Inventory

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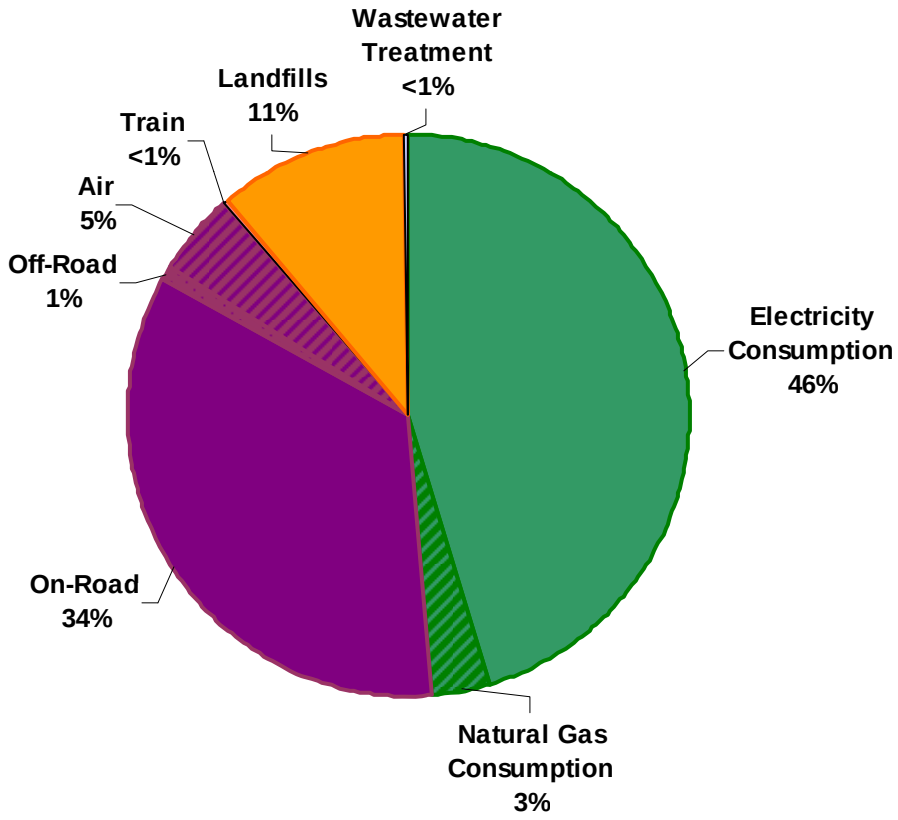
- Determine scope ("boundaries").
  - Internal government operations only
  - Community-wide: city limits, county, MSA, utility service area
- Determine base year (and future target year).
  - Base year: 1990, 2005, year of policy adoption
  - Future year: 2020, 2050, year associated with related plans
- Determine methodology.
  - ICLEI: http://www.icleiusa.org/programs/climate/ghg-protocol
  - Climate Registry: http://www.theclimateregistry.org/resources/protocols/local-government-operations-protocol/
  - User-defined
- Determine reporting mechanism.
  - Typically determined by methodology
  - Also influenced by preference for 3rd party reporting and verification

Travis County (Community) GHG Inventory, 2007

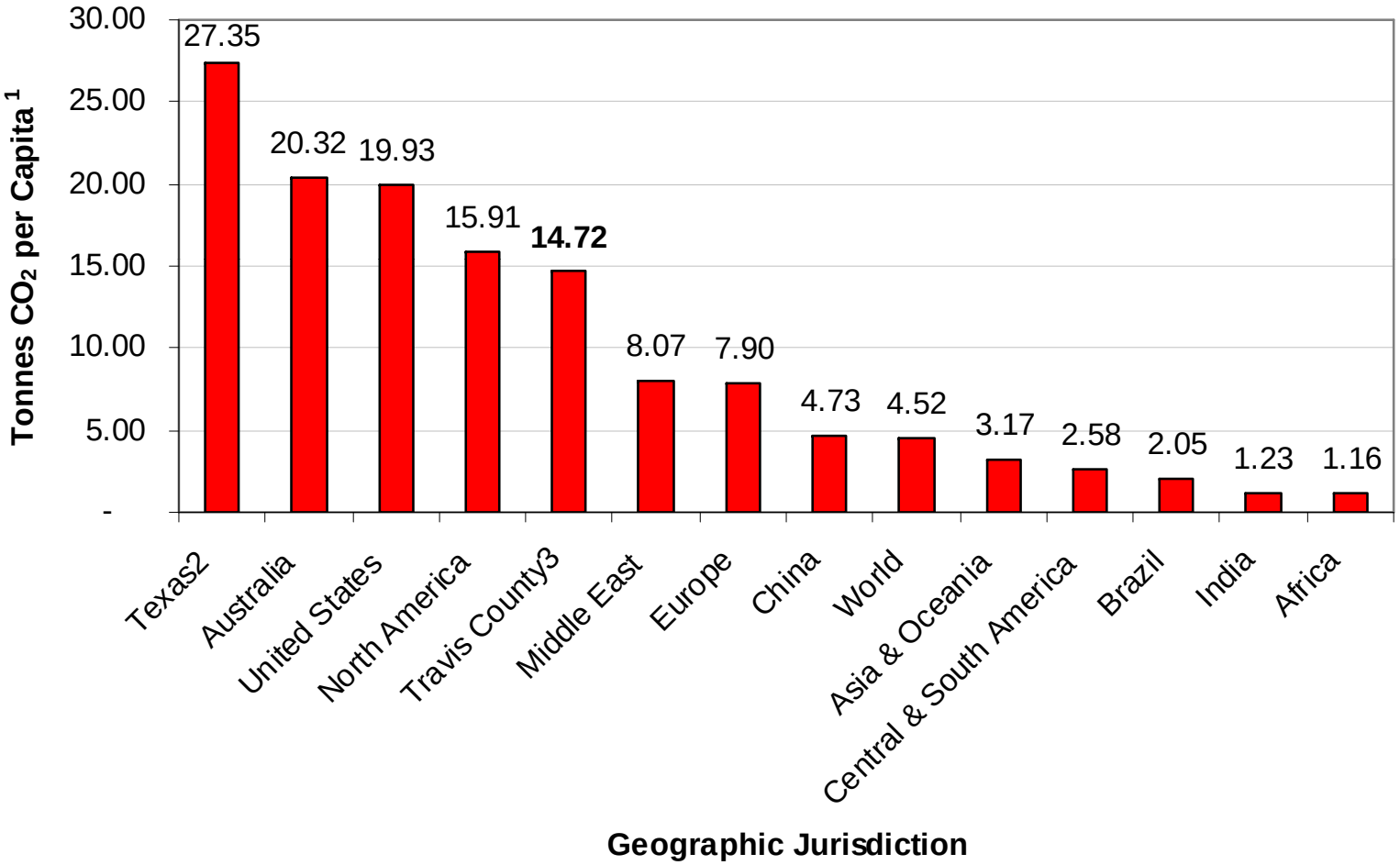
15,697,792 Metric Tons CO_2-eq.

Equivalent to annual CO_2 emissions from the electricity use of 2.0 million U.S. homes



Source: City of Austin

Comparison of Energy-related CO_2 Emissions per Capita



Source: City of Austin

Step 2 – Establish GHG Emissions Reduction Target

- Reduce GHG emissions [X]% below [base year] levels by [future target year]
  - Common base years: 1990, 2005, year of policy adoption
  - Common future target years: 2020, 2050, year associated with related plans
- Recommend phasing in GHG reductions short-, intermediate-, and long-term targets
  - Annapolis, MD Ex:
    - 50% below 2006 levels by 2012
    - 75% below 2006 levels by 2025
    - 100% below 2006 levels (carbon-neutral) by 2050

ICLEI Member Local Government GHG Reduction Base Years

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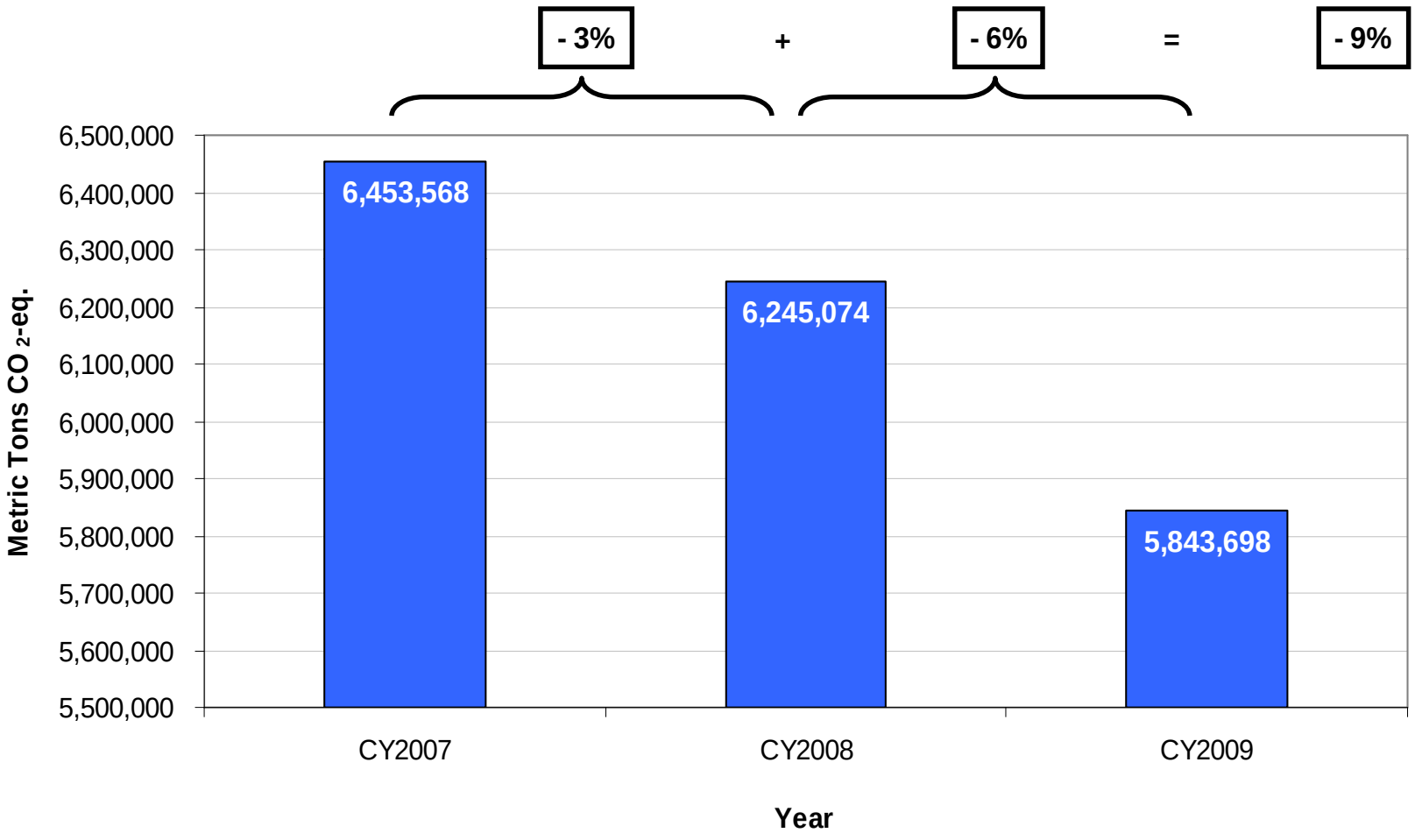
Base Year	City	Community	
1988	0	1	
1989	0	0	
1990	16	22	20%
1991	0	0	
1992	0	0	
1993	0	0	
1994	0	1	
1995	1	2	
1996	0	0	
1997	0	1	
1998	4	4	
1999	1	1	
2000	11	11	12%
2001	6	4	
2002	2	2	
2003	2	1	
2004	4	5	
2005	20	34	33%
2006	7	4	
2007	10	8	10%
2008	2	2	
2017	1	0	
TOTAL	**87**	**103**	

Source: Modified from ICLEI, Measuring Up, 2009

City of Austin Municipal Operations GHG Inventory Trends, 2007-2009



Source: City of Austin

Steps 3 & 4 – Adopt & Implement Climate Action Plan

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- Intro/Front Matter
  - Purpose
  - **Scope**
  - **Accountability**
- Baseline
- Goals
  - Mitigation - quantitative
  - Adaptation – qualitative
- **Strategies**
  - **Energy**
  - **Water**
  - **Transportation**
  - **Waste**
  - **Procurement/Materials Management**

Climate Action Plan Scope

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- Single Community-wide Plan
  - Incorporates local government emissions and actions as subset of larger community
- Separate Government and Community Plans
  - Develops two separate plans outlining the emissions and actions of the local government and community separately
- Sub-government Level Plans
  - Modification on government-only plan where each department/agency creates its own plan

Scope: Single Community-wide Plan

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- Pros
  - May be more comprehensive
  - May better document government-community interrelationships
  - May provide a forum for community engagement
- Cons
  - May weaken accountability
  - May add time to plan
  - May stifle information/idea exchange

Scope: Separate Government and Community Plans

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- Pros
  - May improve accountability
  - May expedite process
  - May facilitate information/idea exchange
- Cons
  - May be difficult to segregate emissions
  - May stifle information/idea exchange
  - May reduce transparency
  - May duplicate effort

Scope: Sub-government Level Plans

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- Pros
  - May increase accountability
  - May increase applicability
- Cons
  - May duplicate effort
  - May be more resource-intensive
  - May stifle information/idea exchange

Climate Action Plan Accountability

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- Establish a central office/authority responsible for oversight, performance, and reporting.
- Translate goals/actions to department-specific performance measures.
- Translate goals/action to employee-specific performance measures.
- Commit to publicly disclose plan and progress.

Accountability: Central Oversight Office/Authority

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- Pros
  - Centralizes accountability
  - Facilitates cross-departmental action
  - Provides one voice
- Cons
  - May be cost-prohibitive
  - May be too centralized

Accountability: Department Performance Measures

- Pros
  - Decentralizes accountability
  - May use established reporting structure
  - May facilitate employee-level performance measurement
- Cons
  - May be difficult to assign performance measures
  - Budget timeline may not align with emissions reporting timeline
  - Emission changes may be outside department control

Accountability: Employee Performance Measures

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- Pros
  - Further decentralizes accountability
  - Uses established reporting structure
- Cons
  - May be difficult to assign performance measures
  - Emission changes may be outside individual control

Accountability: Public Disclosure

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- Pros
  - Uses public pressure to ensure accountability
  - Promotes government transparency and inclusivity
- Cons
  - Establishes expectation of continued reporting

Climate Action Plan Mitigation & Adaptation Strategies

- Emission sources typically addressed include:
  - Energy
  - Water
  - Transportation
  - Waste
  - Procurement/Materials Management
- For each emission source category, identify strategies to:
  - Measure: Assess current conditions
  - Act: Implement mitigation/adaptation measures
  - Track: Appoint responsible party to monitor progress
- Consider categorizing strategies into Operational and Technological strategies

Strategies: Energy

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Mitigation

- Measure:
  - Government: Benchmark facilities' energy use.
  - Community: Identify high energy use/energy intensity areas.
- Act:
  - Government: Implement a green IT program.
  - Community: Host a community energy challenge.

Adaptation

- Measure:
  - Both: Identify vulnerability to energy supply shocks/disruptions.
  - Both: Identify vulnerability to peak energy demand events.
- Act:
  - Both: Encourage energy provider to forecast future energy needs based on climate change models.
  - Both: Promote energy conservation and smart grid efforts to avoid peak demand spikes.

Mitigation and Adaptation

- Track:
  - Government: Appoint an energy coordinator(s).
  - Community: Implement a smart grid program to enable energy use monitoring and management.

Strategies: Water

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Mitigation

- Measure:
  - Government: Benchmark facilities' water use.
  - Community: Conduct a survey of public landscaping's water intensity.
- Act:
  - Government: Use untreated and/or reclaimed water where feasible.
  - Community: Deploy residential/commercial/industrial audit teams.

Adaptation

- Measure:
  - Both: Identify vulnerability to water supply shocks/disruptions.
- Act:
  - Both: Encourage water provider to forecast future water needs based on climate change models.
  - Both: Upgrade to "smart" water distribution system to identify and repair leaks (or potential leaks).

Mitigation and Adaptation

- Track:
  - Government: Appoint water coordinator(s).
  - Community: Install individual meters and implement dynamic pricing.

Strategies: Transportation

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Mitigation

- Measure:
  - Government: Identify underused/oversized fleet vehicles for downsizing.
  - Community: Evaluate capacity constraints of road network.
- Act:
  - Government: Employ route optimization software with GPS tracking.
  - Community: Implement parking cash-out program.

Adaptation

- Measure:
  - Both: Identify infrastructure vulnerable to heat stress.
- Act:
  - Government: Develop specification for heat-tolerant asphalt.
  - Both: Target tree planting to maximize street cover in vulnerable areas.

Mitigation and Adaptation

- Track:
  - Government: Appoint transportation coordinator(s).
  - Community: Implement intelligent transportation systems that can monitor and regulate traffic flow.

Strategies: Waste

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Mitigation

- Measure:
  - Both: Perform waste stream audit to identify types, volumes, and flows of waste.
- Act:
  - Government: Label trash cans as “Landfill” and provide clear signage for recycling/ composting options.
  - Community: Implement single-stream recycling.

Adaptation

- Measure:
  - Both: Identify new waste streams that may be induced by climate change.
- Act:
  - Both: Evaluate reuse options for new waste streams.

Mitigation and Adaptation

- Track:
  - Government: Appoint waste coordinator(s).
  - Community: Implement waste collection measurement systems that charge by weight rather than flat fee.

Strategies: Procurement/Materials Management

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Mitigation

- Measure:
  - Government: Survey top commodities/ services procured for lifecycle GHG mitigation opportunities.
  - Community: Survey regional import/export flows for locally sourced opportunities.
- Act:
  - Government: Use “best value” contracting.
  - Government: Adopt refrigerant management procedures.
  - Community: Support locally sourced food and products.

Adaptation

- Measure:
  - Government: Evaluate durability of goods/materials under climate stressors.
  - Community: Identify crops vulnerable to climate change.
- Act:
  - Government: Develop specification for heat-tolerant asphalt.
  - Community: Support R&D to enhance resiliency of local agricultural products.

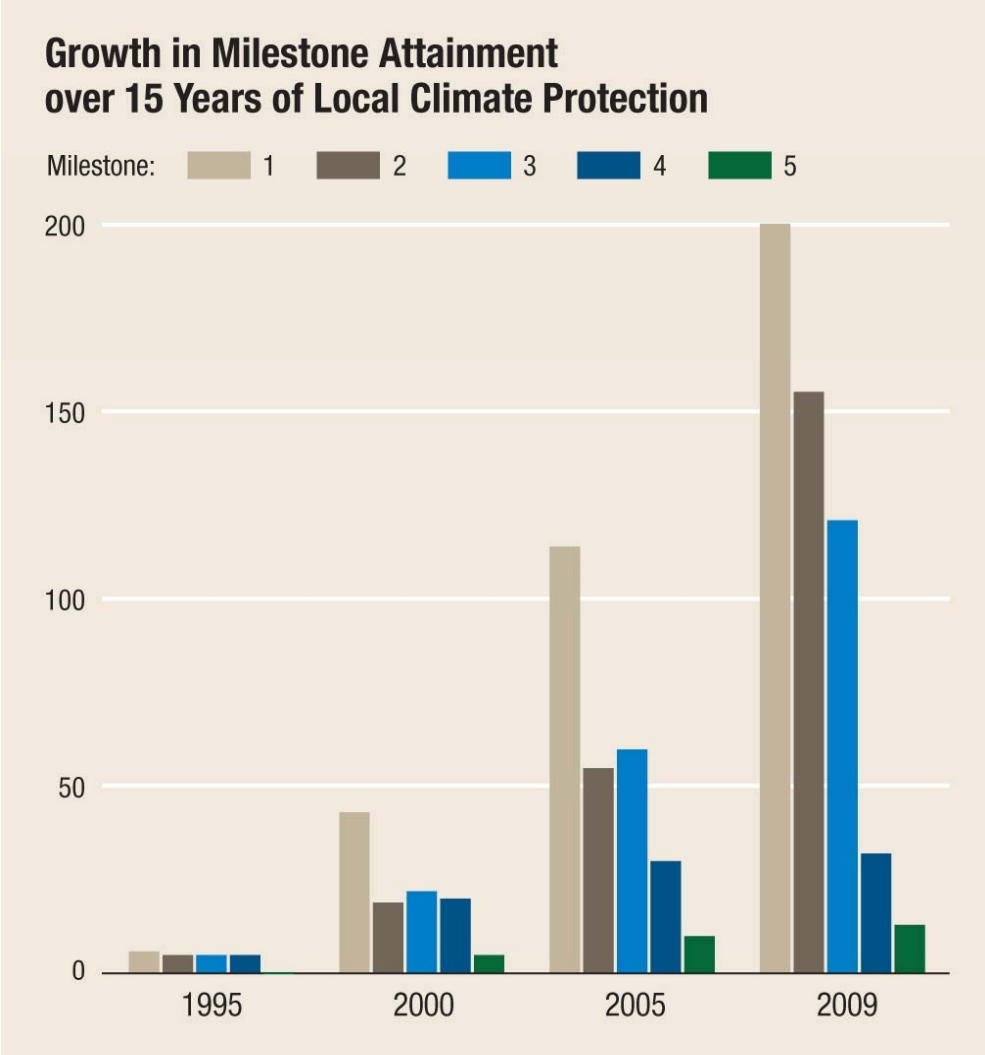
Mitigation and Adaptation

- Track:
  - Government: Appoint procurement/materials management coordinator(s).

Step 5 – Monitor and Report on Climate Action Plan

- Update GHG emissions inventory on regular basis.
  - Annually
  - Every 3 years, 5 years, etc.
- Report progress towards achieving goals.
  - Annual report
  - Annual budget/business plan
- Modify where needed.
  - Intermediate goals provide flexibility

ICLEI Member Cities with Climate Action Plans, 1995 through 2009



Source: ICLEI, *Measuring Up*, 2009

Step 6 – Recognize Achievement

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- Government
  - Allow departments to keep operational cost savings.
  - Provide acknowledgement from mayor.
  - Highlight employees/departments online and in newsletters.
- Community
  - Label/certification program
  - Free press
  - Awards ceremonies

The ICLEI+ Model In Review

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1. Develop a baseline GHG emissions inventory (and forecast).
2. Establish an emissions reduction target based on historical (and forecasted emissions).
3. Adopt a climate action plan to achieve the emissions reduction target.
4. Implement the climate action plan.
5. Monitor and report on climate action plan progress and re-evaluate plan as needed.
6. Recognize achievement.

Celebrate the milestones; learn from the mistakes.

Climate Action Plan Resources

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- DOE Technical Assistance Program Solution Center: http://www1.eere.energy.gov/wip/solutioncenter/default.html
- EPA State and Local Climate and Energy Program: http://www.epa.gov/statelocalclimate/index.html
  - ENERGY STAR Guidelines for Energy Management: http://www.energystar.gov/index.cfm?c=guidelines.guidelines_index
  - ENERGY STAR Portfolio Manager: http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager
  - EPA Global Warming Potentials of ODS Substitutes: http://www.epa.gov/ozone/geninfo/gwps.html
- Center for Climate Strategies: http://www.climatestrategies.us/
- ICLEI Climate Change Program: http://www.icleiusa.org/programs/climate
  - ICLEI Climate Action Plan Template: http://coolcalifornia.org/article/tips-to-develop-a-climate-action-plan#Climate_Action_Plan_Template
- CoolCalifornia.org Climate Action Planning: http://coolcalifornia.org/article/climate-action-planning
- List of Local Government Climate Action Plans: http://www.opr.ca.gov/ceqa/pdfs/City_and_County_Plans_Addressing_Climate_Change.pdf

Upcoming Webinars

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Please join us again:

Title: **Procuring and Implementing Solar Projects on Public Buildings: How to Avoid Common Pitfalls**
Host: Jeffrey Schultz and Kimberly Owens, ICF International
Date: Wednesday, December 8, 2010
Time: 1:00 – 2:30 pm EST

Title: **ESPC Pricing and Financing**
Host: ICF/SENTECH
Date: Thursday, December 16, 2010
Time: 1:30 – 2:30 pm EST

For the most up-to-date information and registration links, please visit the Solution Center webcast page at www.wip.energy.gov/solutioncenter/webcasts

Questions?